

**GOVERNMENT OF INDIA  
MINISTRY OF EARTH SCIENCES  
RAJYA SABHA  
UNSTARRED QUESTION NO. 823  
ANSWERED ON 27/07/2023**

**OCEAN THERMAL ENERGY CONVERSION (OTEC)**

**823 SHRI AYODHYA RAMI REDDY ALLA:**

Will the Minister of EARTH SCIENCES be pleased to state:

- (a) the potential advantages of Ocean Thermal Energy Conversion (OTEC) as a renewable energy source;
- (b) the manner in which it will contribute in reducing greenhouse gas emissions and mitigating climate change;
- (c) the environmental impact of OTEC compared to other forms of energy generation;
- (d) measures taken to mitigate any potential negative effects on marine ecosystems and biodiversity;
- (e) policy frameworks and incentives in place to promote development and deployment of OTEC technology; and
- (f) manner in which Government support OTEC projects through regulations, financing mechanisms or partnerships with private sector entities?

**ANSWER  
THE MINISTER OF EARTH SCIENCES  
(SHRI KIREN RIJJU)**

- (a) Ocean Thermal Energy Conversion (OTEC) system utilizes temperature gradient between warm surface seawater and cooler deep seawater to generate electricity. As these temperatures are nearly constant except for minor seasonal variations, OTEC can provide steady electric power irrespective of the time in the day or in the year. Hence OTEC plant can supply base load power which enhances grid stability. OTEC technology can also generate potable water by desalinating seawater.
- (b) OTEC will contribute to reducing greenhouse gas emissions and mitigating climate change by reducing dependence on fossil fuels for electricity generation and desalination.
- (c)& (d) Renewable energy system working on OTEC principle provide electricity while emitting zero greenhouse gases and cause no environmental pollution during its operation; hence mitigation measures not needed.
- (e)& (f) Presently, there is no policy framework or incentives in place to specifically promote development and deployment of OTEC technology.

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